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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,014	05/31/2001	Francis Briand	S 5405 US-OP/MM	8422

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EXAMINER	
MCHENRY, KEVIN L	

ART UNIT	PAPER NUMBER
1725	8

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/870,014	BRIAND ET AL.	
	Examin r	Art Unit	
	Kevin L McHenry	1725	

-- Th MAILING DATE of this communication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 18-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 18-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 May 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-4, 7-9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of Church (U.S.P. 4,572,942) and Steen (4,167,662).

Hamasaki teaches a process for welding metal workpieces by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc. The arc has a plasma stream and is produced by a MIG welding device. During the welding operation at least a part of the welding zone and joint is shielded by a gas mixture of argon and helium (see U.S.P. 4,507,540; particularly Figure 3; column 1, lines 7-18, 34-36; column 2, lines 20-50)

Hamasaki does not teach the addition of other gases to the argon/helium mixture or compositions of such mixtures.

Church teaches a gas-metal-arc welding process that uses a shielding gas with a composition of about 40-70% argon, about 25-60% helium, about 3-10% carbon dioxide, and about 0.1-2% oxygen. Church teaches a preferable composition within this range for welding mild and low alloy steels and that this mixture aids in controlling the location of the plasma field (see U.S.P. 4,572,942; particularly column 1, lines 16-21, 63-68; column 2, lines 1-12; column 4, lines 49-60).

Steen teaches a hybrid welding process in which TIG or MIG electrodes can be used (see U.S.P. 4,167,662; particularly column 4, lines 63-66).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of Hamasaki by the teachings of Church. One would have been motivated to do so in order to aid in the control of the plasma field and to provide a shielding gas composition for welding mild and low alloy steels, as Church teaches. It would have been obvious to one of ordinary skill in the art to made the electrode taught by the process described above a TIG electrode, as taught by Steen, as opposed to a MIG electrode, as taught by Hamasaki, because of the art recognized functional equivalence of MIG and TIG electrodes (i.e. both are suitable electrodes for a hybrid welding process).

3. Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of JP 355024739 and Steen (U.S.P. 4,167,662).

Hamasaki teaches a process for welding metal workpieces by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc. The arc has a plasma stream and is produced by a MIG welding device. During the welding operation at least a part of the welding zone and joint is shielded by a gas mixture of argon and helium (see U.S.P. 4,507,540; particularly Figure 3; column 1, lines 7-18, 34-36; column 2, lines 20-50)

Hamasaki does not teach the addition of other gases to the argon/helium mixture or compositions of such mixtures.

JP 355024739 teaches a steel welding process in which 0.2-5% nitrogen gas is added to argon, helium, or a carbonic acid gas. JP 355024739 teaches that this is done so that steels can be welded with a material that has a lesser strength than that of the steel (see JP 355024739; particularly abstract).

Steen teaches a hybrid welding process in which TIG or MIG electrodes can be used (see U.S.P. 4,167,662; particularly column 4, lines 63-66).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of Hamsaki by the teachings of JP 355024739. One would have been motivated to do so in order to be able to weld a steel with a material that has a lesser strength than the steel, as JP 355024739 teaches. It would have been obvious to one of ordinary skill in the art to made the electrode taught by the process described above a TIG electrode, as taught by Steen, as opposed to a MIG electrode, as taught by Hamasaki, because of the art recognized functional equivalence of MIG and TIG electrodes (i.e. both are suitable electrodes for a hybrid welding process).

4. Claims 1, 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamasaki (U.S.P. 4,507,540) in view of Meehan, deceased et al. (U.S.P. 3,939,323) and Steen (U.S.P. 4,167,662).

Hamasaki teaches a process for welding metal workpieces by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc. The arc has a plasma stream and is produced by a MIG welding device. During the welding operation at least a part of the welding zone and

joint is shielded by a gas mixture of helium or argon and helium (see U.S.P. 4,507,540; particularly Figure 3; column 1, lines 7-18, 34-36; column 2, lines 20-50)

Hamasaki does not teach the addition of other gases to the argon/helium mixture or compositions of such mixtures.

Meehan et al. teach a laser welding process for stainless steels that uses a shielding gas composition of helium plus 10% hydrogen. Meehan et al. also teach that the addition of hydrogen improves weld penetration (see U.S.P. 3,939,323; particularly Figure 1; column 1, lines 5-8; column 2, lines 1-14).

Steen teaches a hybrid welding process in which TIG or MIG electrodes can be used (see U.S.P. 4,167,662; particularly column 4, lines 63-66).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of Hamasaki by the teachings of Meehan et al. One would have been motivated to do so in order to provide a shielding gas composition for stainless steels and to improve weld penetration, as Meehan et al. teach. It would have been obvious to one of ordinary skill in the art to made the electrode taught by the process described above a TIG electrode, as taught by Steen, as opposed to a MIG electrode, as taught by Hamasaki, because of the art recognized functional equivalence of MIG and TIG electrodes (i.e. both are suitable electrodes for a hybrid welding process).

5. Claims 1, 5, 6, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (U.S.P. 6,034,343) in view of EP 639423 and Steen (U.S.P. 4,167,662).

Hashimoto et al. teach a hybrid welding process for welding metal workpieces by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc that are supplied from a single head. The arc is produced by a welding device with a consumable electrode. During the welding operation at least a part of the welding zone and joint is shielded by gas (see U.S.P. 6,034,343; particularly Figure; column 1, lines 20-25, 35-38, 58-67; column 2, lines 1-7; column 3, lines 56-67; column 4, lines 1-6, 38-55).

Hashimoto et al. do not teach shielding gas compositions for the welding operation.

EP 639423 teaches a gas arc welding process in which a shielding gas of argon and/or helium gas with 0.01-0.7% carbon dioxide, oxygen, or a mixture of carbon dioxide and oxygen is used to weld aluminum and aluminum alloys (see EP 639423; particularly abstract).

Steen teaches a hybrid welding process in which TIG or MIG electrodes can be used (see U.S.P. 4,167,662; particularly column 4, lines 63-66).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of Hashimoto et al. by the teachings of EP 639423. One would have been motivated to do so in order to provide a shielding gas composition, particularly one suitable for welding aluminum and aluminum alloys, as EP 639423 teaches. It would have been obvious to one of ordinary skill in the art to made the electrode taught by the process described above a TIG electrode, as taught by Steen, as opposed to a MIG electrode, as taught by Hashimoto et

al., because of the art recognized functional equivalence of MIG and TIG electrodes (i.e. both are suitable electrodes for a hybrid welding process).

6. Claims 1 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (U.S.P. 6,034,343) in view of GB 1 358 985 and Steen (U.S.P. 4,167,662).

Hashimoto et al. teach a hybrid welding process for welding metal workpieces by producing a welded joint between the edges of the workpieces in which the welded joint is produced by using a laser beam and an electric arc that are supplied from a single head. The arc is produced by a welding device with a consumable electrode. During the welding operation at least a part of the welding zone and joint is shielded by gas (see U.S.P. 6,034,343; particularly Figure; column 1, lines 20-25, 35-38, 58-67; column 2, lines 1-7; column 3, lines 56-67; column 4, lines 1-6, 38-55).

Hashimoto et al. do not teach shielding gas compositions for the welding operation.

GB 1 358 985 teaches an arc welding process with a consumable electrode that uses a gas shielding composition of 75-96% argon, 3-15% carbon dioxide, and 1-6% hydrogen for welding stainless steels. GB 1 358 985 also teaches that this composition reduces spattering (see GB 1 358 985; particularly page 1, lines 9-12, 31-34; page 2, lines 61-70).

Steen teaches a hybrid welding process in which TIG or MIG electrodes can be used (see U.S.P. 4,167,662; particularly column 4, lines 63-66).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process of Hashimoto et al. by the teachings of GB 1 358 985. One would have been motivated to do so in order to provide a shielding gas composition for stainless steels and to reduce spatter, as GB 1 358 985 teaches. It would have been obvious to one of ordinary skill in the art to made the electrode taught by the process described above a TIG electrode, as taught by Steen, as opposed to a MIG electrode, as taught by Hashimoto et al., because of the art recognized functional equivalence of MIG and TIG electrodes (i.e. both are suitable electrodes for a hybrid welding process).

7. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (U.S.P. 6,034,343) in view of GB 1 358 985 and Steen (U.S.P. 4,167,662) as applied to claims 1 and 14 above, and further in view of Cook (U.S.P. 2,790,656).

The former references teach the process as described above in section 6. However, these references do not teach that the process can be used to weld dissimilar metals.

Cook teaches a process of welding dissimilar metals to provide a strong joint by using a gas metal arc welding process with a consumable or non-consumable electrode (see U.S.P. 2,790,656; particularly column 1, lines 15-23; column 2, lines 38-43; column 3, lines 3-5; column 4, lines 42-47).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made to have modified the process described above by the

teachings of Cook. One would have been motivated to do so in order to use the process to weld dissimilar metals and provide a strong joint between them, as Cook teaches.

8. Claims 16, 18, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto et al. (U.S.P. 6,034,343) in view of GB 1 358 985 and Steen (U.S.P. 4,167,662) as applied to claims 1 and 14 above, and further in view of Beyer et al. (U.S.P. 5,821,493).

The former references teach the process described above in section 6. However, these references do not teach that the arc creates a plasma, that the welded joint is a vehicle body element, that workpieces can have different thicknesses, or that the operation forms a tube.

Beyer et al. teach a hybrid laser and arc process that is used to make tubes and components for vehicle bodies. The arc of the process forms a plasma and uses a TIG type electrode. Beyer et al. also teaches that the workpieces can be of different thickness and that this process allows the elimination of preparation and positioning steps (see U.S.P. 5,821,493; particularly column 1, lines 13-17, 21-65).

It would have been obvious to one of ordinary skill in the art at the time that the applicant's invention was made that the process described above could be used to weld workpieces of different thickness, make tubing, and produce components for vehicle bodies. One would have been motivated to use this process for such operations in light of the teachings of Beyer et al. that such a hybrid process would allow the elimination of preparation and positioning steps.

Response to Amendment

9. Upon carefully reviewing applicant's amendment filed 11 December 2002, the examiner acknowledges the amendments to the specification, the cancellation of claim 17, and the amendments to claims 1-9, 11-13, 16, and 18-21. The former objection to the specification, claim objections, and 112 rejections are withdrawn in view of applicant's amendments.

Response to Arguments

10. Applicant's arguments with respect to claims 1-16 and 18-21 have been considered but are moot in view of the new ground(s) of rejection. The examiner notes that claim 1 is rejected in each action above in light of the teachings of Steen that regard the functional equivalence of MIG and TIG electrodes for hybrid welding processes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin L McHenry whose telephone number is (703) 305-9626. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G Dunn can be reached on (703) 308-3318. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-6078 for regular communications and (703) 305-6078 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

February 10, 2003

M. ALEXANDRA ELVE
PRIMARY EXAMINER